

Appl. No. 10/065,044
Amdt. Dated March 8, 2004
Reply to Office action of December 8, 2003

REMARKS/ARGUMENTS

This case has been carefully reviewed in light of Office Action dated July 16, 2003. In the Office Action, claims 1-5, 9-17, 21-22 and 24 were rejected under 35 USC 102(b), claims 6, 18 and 23 were rejected under 35 USC 103(a) and the drawings were objected to under 37 CFR 1.83(p)(5). In the Office Action, claims 7, 8, 19 and 20 were objected to but were deemed allowable if rewritten in independent form including the limitations of the base claim and any intervening claims. In this amendment, claims 6, 18 and 23 were canceled, claim 15 was amended and Figure 1 was amended. Replacement sheets have been provided for all figures. No new matter has been added.

Claims 1-5, 7-17, 19-22 and 24 remain pending in this application.

Claim 15 was amended to correct for a typographical error.

The drawings were objected to under 37 CFR 1.83(p)(5). Applicant respectfully submits that reference numeral 16 has been added to Fig.1. Applicants further submit that reference numeral 145 has been removed from Fig.1 overcome the drawing objection. Applicants respectfully submit that reference numeral 180 has been described in the detailed description (paragraph 20). Applicants respectfully submit that the drawings are in full compliance with 37 CFR 1.83(p)(5). Withdrawal of the drawing objection is respectfully requested.

Claims define allowable subject matter over the applied art

Applicant respectfully traverses the rejection of claims 1-5,9-17,21-22 and 24 under 35 USC 102(b) as being anticipated by Jakob et al (US Pat. No. 6289232). The present invention, as claimed in independent claims 1 and 13 are patentable over the Jakob reference. "Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." W.L. Gore & Associates v. Garlock, Inc., 220 USPQ 303, 313 (Fed. Cir. 1983). The Jakob reference does not disclose each element of the present invention as claimed in independent claim 1 and 13. Independent claims 1 and 13 disclose a method and system for reconstruction used in a parallel MRI system where a plurality of MR detector coils are arranged in an array and each coil has a corresponding spatial sensitivity profile. The method comprises detecting a plurality of gradient-encoded MR signals from the plurality of MR detector coils and processing the detected MR signals with at least one filter bank to reconstruct at least one image.

The Jakob reference does not teach or disclose each and every element of independent claims 1 and 13. Specifically, the Jakob reference does not teach, suggest or disclose Applicants' recited processing means by which the MR signals are processed using at least one filter bank to reconstruct the image. The Jakob reference instead teaches acquiring calibration information from an in vivo MR signal collection acquired during the application of different gradients of known spacing and orientation. This calibration procedure defines the coefficients of a transformation, which may be applied directly to collected signals to fill a spatial data matrix using

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a smaller set of measured signal data acquired using a reduced set of conditioning or data acquisition steps. The data matrix is then transformed to yield an accelerated MR image (column 6, lines 30-40). Further, the Jakob reference discloses reconstruction process includes the step of Fourier transforming the fully characterized data to form low pass filtered coil sensitivity weighted images which are processed to provide the coil sensitivity functions (column 21, lines 52-56). Nowhere does Jakob teach, suggest or disclose, using a filter bank for spatially filtering the plurality of detected MR signals and processing the spatially filtered MR signals to reconstruct the image.

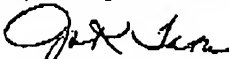
Therefore, the present invention, as claimed in amended independent claims 1 and 13 are not anticipated by the Jakob reference. Claims 2-5, and 9-12 depend directly or indirectly from claim 1 and claims 14-17, 21-22 and 24 depend directly or indirectly from claim 13. Accordingly, Applicants submit that claims 2-5, 9-12, 14-17, 21-22 and 24 are allowable by dependency. Thus, it is respectfully requested that the rejection of Claims 1-5, 9-17, 21-22 and 24 under 35 USC §102 (b) be withdrawn.

Claims 6 and 18 are rejected under 35 USC § 103 (a) as being unpatentable over Jakob et al. In view of Pelc et al. Claim 23 is rejected under 35 USC 103(a) as being unpatentable over Jakob et al. in view of Ochi et al. Applicants respectfully submit that claims 6, 18 and 23 have been cancelled and the 103 (a) rejection has been obviated.

In view of the foregoing amendment and for the reasons set out above, Applicants respectfully submit that the application is in condition for allowance. Favorable reconsideration and prompt allowance of the application are respectfully requested.

Should the Examiner believe that anything further is needed to place the application in condition for allowance, the Examiner is requested to contact Applicants' undersigned representative at the telephone number below.

Respectfully submitted,


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